# Threat Considerations in Test & Evaluation

April 2009

# Outline

- **Threat in T&E:**
  - **Requirements**
  - **Purpose**
  - **Importance**
- **Overview of Processes:**
  - **Threat Steering Group (TSG)**
  - **Threat Test Support Package (Threat TSP)**
  - **Validation of Threat Representations**
  - **Accreditation of Threat Representations**
- **Threat in T&E Master Plans (TEMPs)**
- **Summary**
- **Key Organizations / Suggested Reading / References**

# Future Combat Systems STAR Threats Coordination Group Quote

**“The primary threat will come from combinations of sensors, communication systems, and weapons, optimized [by skilled adversaries] to take advantage of the terrain and weather in which they are employed.”**

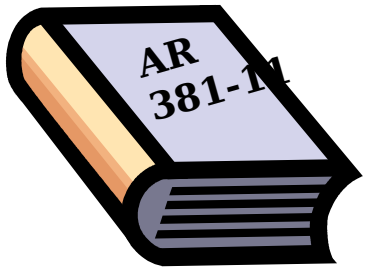
# Requirements for Threat in T&E
# - DoD Documents -

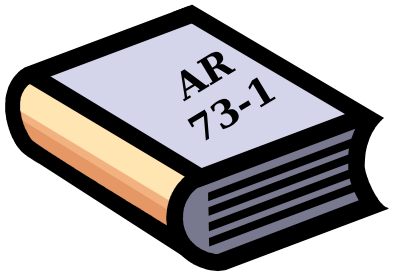
- DoD Directive 5000.1: Test and evaluation **shall** … confirm performance against documented capability needs and **adversary capabilities** as described in the **system threat assessment**. (Paragraph E1.11)

- DoD Instruction 5000.2: The T&E strategy **shall** … determine whether systems are operationally effective, suitable, and survivable **against the threat detailed in the System Threat Assessment**. (Paragraph E5.1.1)

# Requirements for Threat in T&E
# - Army Regulations -

- AR 381-11: Requires that testing include an **accurate representation of the threat** projected to exist at a system post initial operational capability (IOC) date. Threats must be identified, approved, and updated continuously throughout the system's life cycle.




- AR 73-1: Per the Defense Acquisition Guidebook, programs will be structured to determine the operational effectiveness, suitability, and survivability of a system operated by typical users **under realistic conditions (such as combat and representative threat)**. (Paragraph 5-3c)

# The Joint OPERATIONAL ENVIRONMENT

| VARIABLE | EXAMPLE |
|---|---|
| • Physical Environment | Urban and other complex terrain |
| • Nature of the State | Failed states, autocratic rule |
| • Society and Culture stress | Disenchanted Populations – Cultures in |
| • Regional/Global Relationships Regional Involvement | International Interest-- |
| • Military Capabilities forces | Insurgents to Industrial Age |
| • Technology | Niche high--tech systems/Hybridization |
| • Information | Media/Information Operations critical |
| • External Organizations | NGOs/IOs/Criminal/Supra-National |
| • National Will | Key to US and coalition |
| • Time | Plays to adversary's advantage |
| • Economics | Support discrete investment |

**The future battlefield - WHERE WE WILL FIGHT**

- **High likelihood of close combat in urban environments and/or complex terrain**
- **Humanitarian issues present across the full spectrum of conflict**
- **Governmental, Private, International, Criminal and Non-Governmental Organizations increased presence and influence**
- **Ubiquitous presence of media**
- **Increased Global and Regional interest in local matters (Alliances and Coalitions)**
- **Advanced Technology present or available . . .**

**. . . and a changing Military Dynamic**

**SOURCE: TRADOC DCSINT, May 2005**

# Purpose of Threat in T&E

## Threat is a Key Component of a Realistic Test Environment

- **AR 73-1 (Glossary) Defines the Realistic Test Environment as:**
  - The conditions under which a system is expected to be operated and maintained, including the natural weather and climatic conditions, terrain effects, battlefield disturbances, and **enemy threat conditions**.

- **DA PAM 73-1 (Paragraph 6-35a) states:**

  The **OT threat represents threat systems capabilities and threat tactics and doctrine postulated at post-fielding**. The environment for these operations may include -

  (1) The employment of opposing forces.

  (2) Electronic and other enemy countermeasures.

  (3) Simulated NBC warfare.

  (4) Smoke and other forms of battlefield obscuration.

  (5) Terrain and weather.

# Importance of Threat in T&E

- DA PAM 73-1:
  - System evaluation **must** be based on testing that accurately represents the threat projected to exist at post-initial operational capability.
  - System evaluation planning **must** reflect the threat against a supporting system or a system that is interoperating with the system under test.
  - If the threat (as described in the STAR) or if any of the threat systems cannot be fully addressed in testing, the limitations, as well as the tester's plan to compensate for the limitations, **must** be included in the TEMP.
- Threat in T&E is **Not Optional**
- Limitations in Threat in T&E **Must Be Documented**

# Threat Support / TSG Process

- **AR 381-11** - Governs threat support to the Army force, combat, materiel and training development process

- **Threat Support Program consists of:**
  - ✓ Validated intelligence products (documents, data bases, models, concepts and scenarios)
  - ✓ Procedure to respond to intelligence requirements
  - ✓ Procedures to apply threat data in studies/simulations or integrate threat into DT and OT

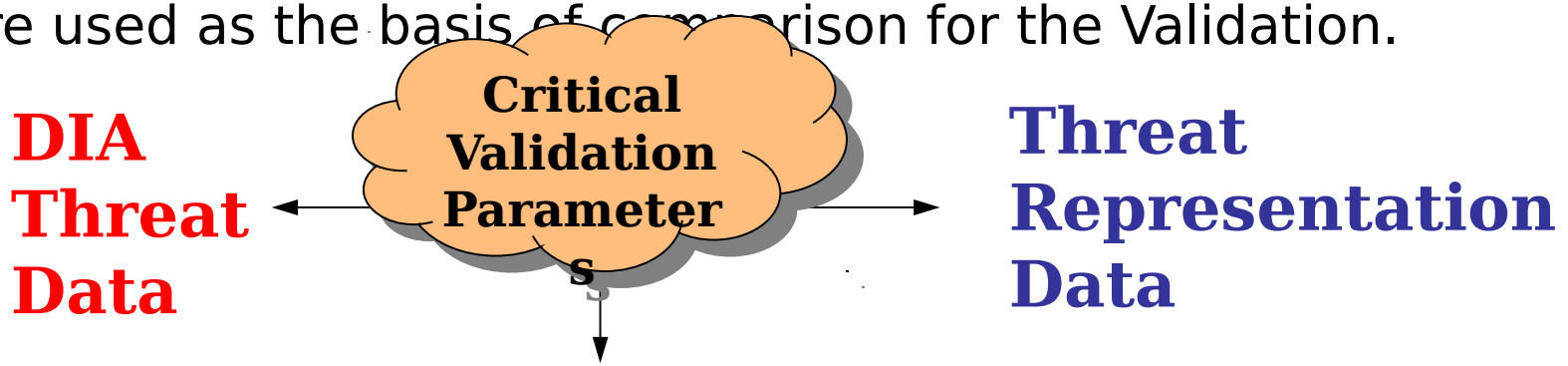
- **TSG Process:**
  - ✓ TSGs called by the PM, Test Officer, Evaluator, or Threat Coordinator
  - ✓ Chaired by HQDA (DCS, G-2) for ACAT I & / II / OSD T&E Oversight
  - ✓ Recommends the DPS based Scenarios to be used as the foundation
  - ✓ Determines the Operational Environment

# Threat Test Support Package (TSP)

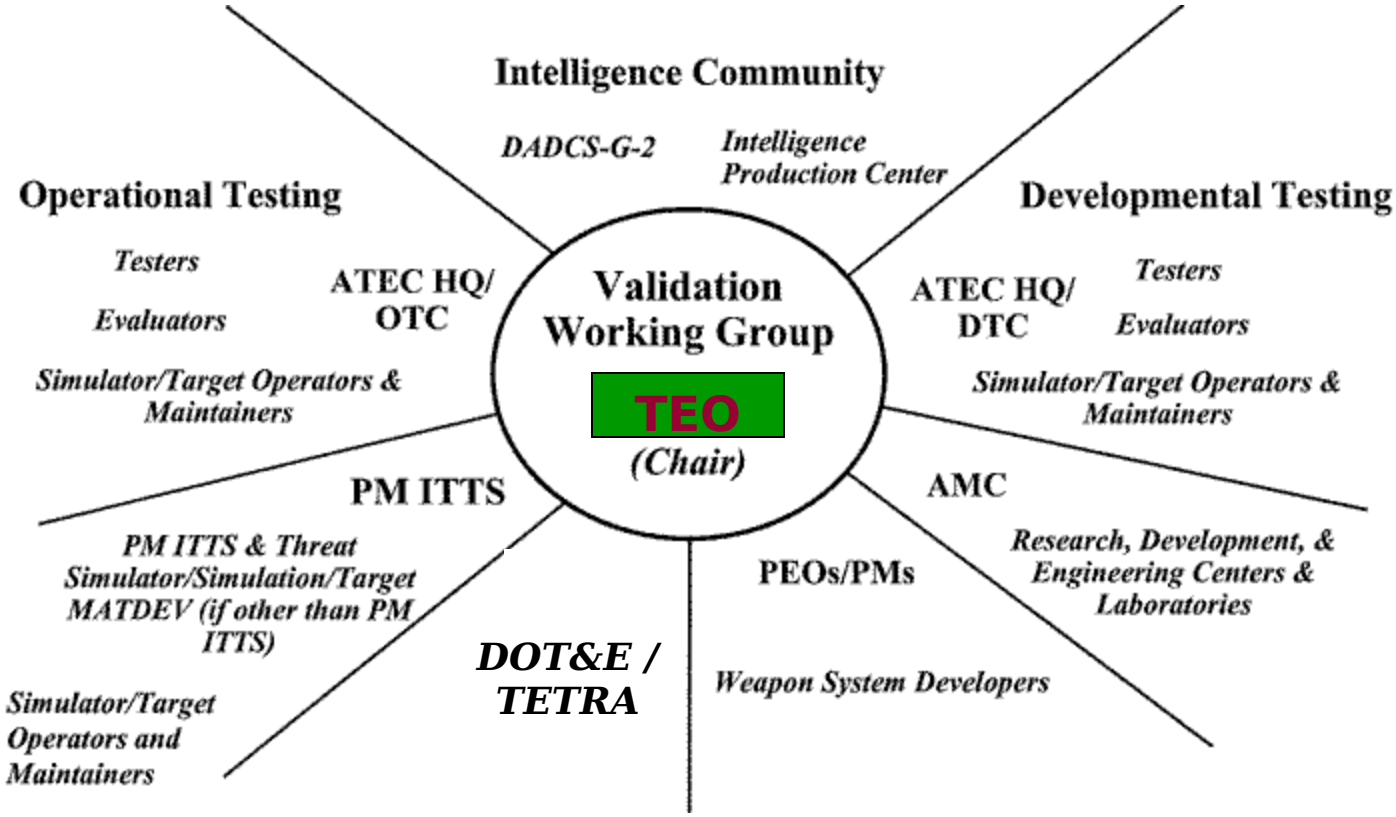
- **Enables accurate portrayal of threat required for DT and OT.**
- **Threat TSP based on the STAR, but focuses on specific threat aspects of the test.**
- **Prepared by:**
  - **TRADOC ⇒ OT Threat TSPs**
  - **AMC ⇒ DT Threat TSPs**
- **Approved by:**
  - **HQDA (DCS, G-2) for ACAT I, II and all OSD T&E oversight**
  - **TRADOC A/DCSINT-Threats for ACAT III OT Threat TSPs**
  - **AMC for all ACAT III DT Threat TSPs**

# Validation of Threat Representations

- Per DA PAM 73-1, Validation is the process for comparing Threat Representations to DIA-approved intelligence data, documenting the variations, and assessing the impact of those differences on the potential use of the simulator.
- Validation of Threat Representations for use in T&E is accomplished through the HQDA (TEO) chaired Army Validation Working Group (VWG).
- VWG establishes a set of Critical Validation Parameters (CVPs) for the threat representation.
- CVPs are used as the basis of comparison for the Validation.



# Validation Working Group



# Accreditation of Threat Representations

- Accreditation determines whether "Threat Representations" are suitable for a specific test.
- Accreditation Critical Parameters are determined based on the test requirements, which are then compared to DIA approved intelligence data. This comparison is used as the basis for the Accreditation.
- Parametric differences are examined to determine any impact on the test.
- Accreditation of Threat Representations is accomplished by ATEC

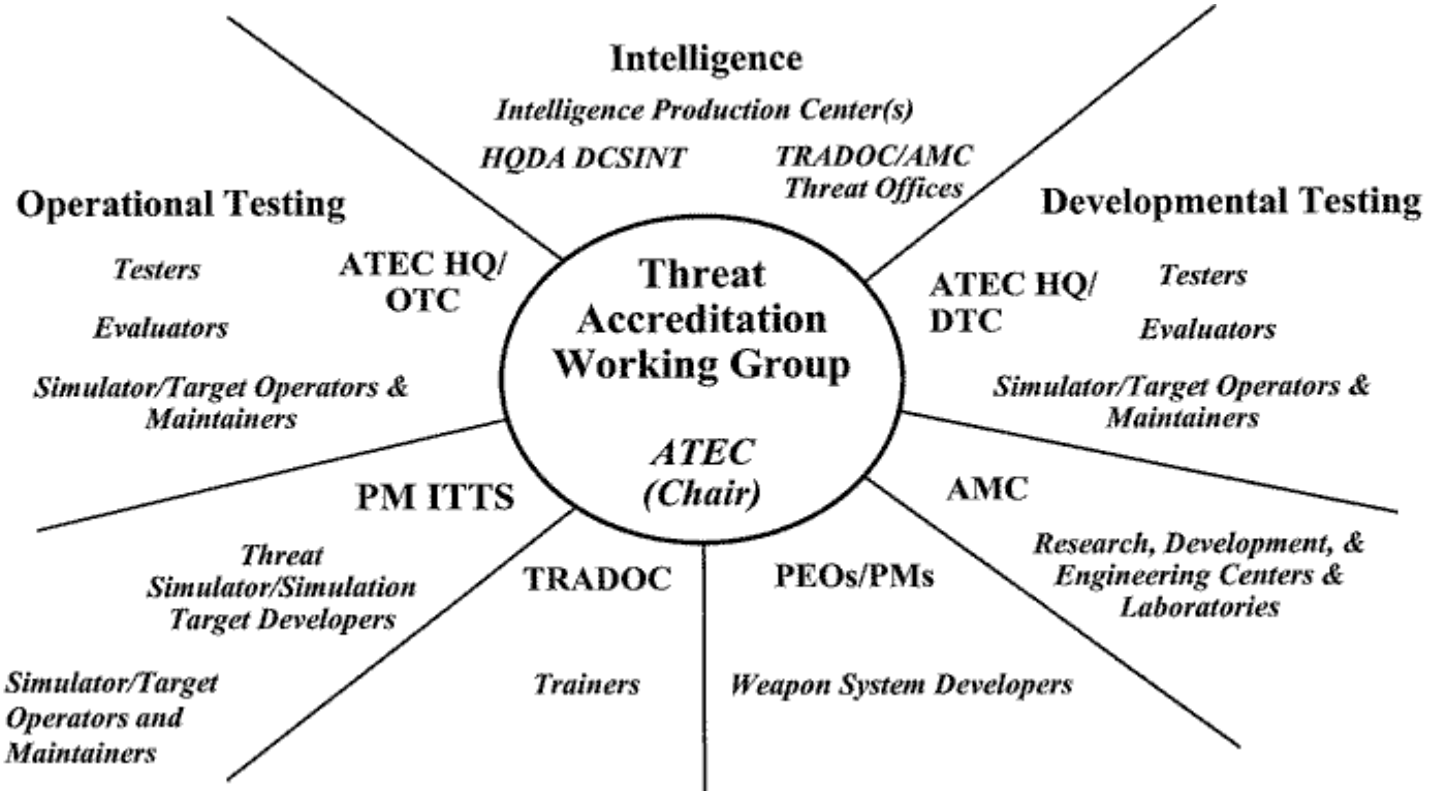
  - ✓ Accreditation accomplished by ATEC-AEC
  - ✓ Accreditation resentations is accomplished by an ATEC chaired Threat Accreditation Working Group (TAWG.)
  - ✓ All Costs associated with the Accreditation Effort are a Test Cost and the PM's responsibility.

THREAT TEST REQ'TS

THREAT REPRESENTATION CAPABILITIES

DIFFERENCES + TEST LIMITATIONS

# THREAT ACCREDITATION WORKING GROUP (TAWG)



# Threat In TEMPs (per DA PAM 73-1)

- **Representations of threats used for T&E will be identified in the TEMP. The TEMP should identify the type, number, availability, and fidelity requirements for all threat representations. Compare the requirements with available and projected assets and their capabilities. Highlight any major shortfalls.**

- **Approval for their use, in accordance with AR 381–11, will be part of the TEMP coordination and approval process. The Threat Integration Support Officer (TISO) from HQDA (DCS, G-2) will be the primary source for threat information for the TEMP.**

# ATEC's Threat POM Advocacy Process

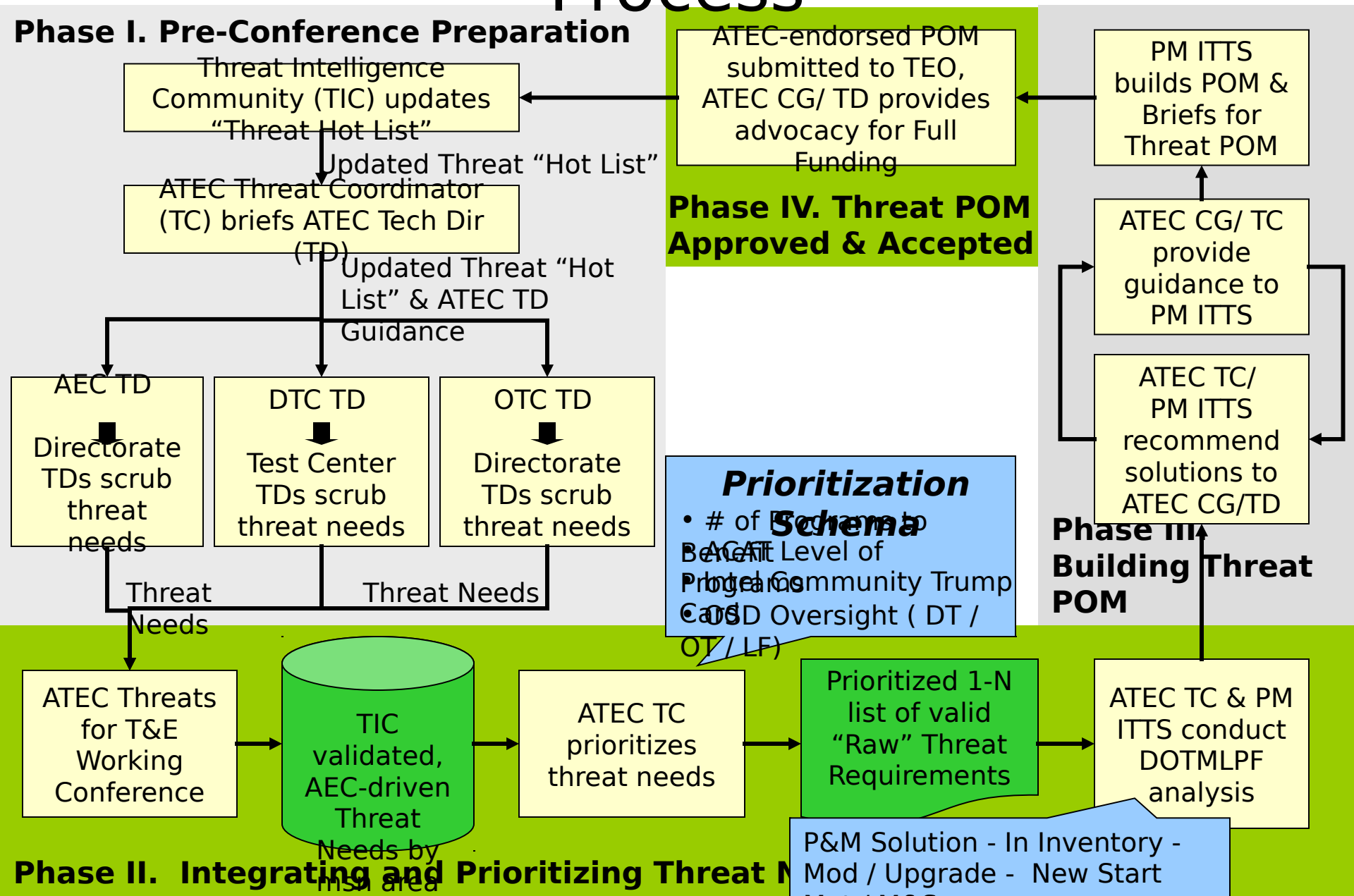
**(1st Iteration FY05)**

**Four Phased Process:**

1. ***Pre Conference Preparation***
2. ***Integrating and Prioritizing Threat Needs****
3. ***Building the Threat POM***
4. ***Threat POM Approved and Accepted (TEO)***

*** Threat Representations in T&E Working Conference: analysis, acceptance, and integration of unrestricted threat representation needs (1-N List). POST Conference: *Prioritization & DOTMLPF Scrub, precursor to threat POM development***

# ATEC Threat POM Advocacy Process


Phase I. Pre-Conference Preparation
Threat Intelligence Community (TIC) updates "Threat Hot List"
Updated Threat "Hot List"
ATEC Threat Coordinator (TC) briefs ATEC Tech Dir (TD)
Updated Threat "Hot List" & ATEC TD Guidance
AEC TD
Directorate TDs scrub threat needs
DTC TD
Test Center TDs scrub threat needs
OTC TD
Directorate TDs scrub threat needs
Threat Needs
Threat Needs
ATEC Threats for T&E Working Conference
TIC validated, AEC-driven Threat Needs by mssn area
ATEC TC prioritizes threat needs
Prioritized 1-N list of valid "Raw" Threat Requirements
ATEC TC & PM ITTS conduct DOTMLPF analysis
Phase II. Integrating and Prioritizing Threat N
Prioritization Schema
• # of Programs to Benefit
• ACAT Level of Programs
• OSD Oversight ( DT / OT / LF)
• Intel Community Trump Card
P&M Solution - In Inventory - Mod / Upgrade - New Start
ATEC-endorsed POM submitted to TEO, ATEC CG/ TD provides advocacy for Full Funding
Phase IV. Threat POM Approved & Accepted
PM ITTS builds POM & Briefs for Threat POM
ATEC CG/ TC provide guidance to PM ITTS
ATEC TC/ PM ITTS recommend solutions to ATEC CG/TD
Phase III Building Threat POM

# ATEC's Threat POM Advocacy Process

# *Pre Conference* *

- ***Research test events 5-7 or more years out***
  - ***Minimum Standards:***
    - ***Next POM Years, plus the TWO years Prior.***
    - ***Flesh out Anticipated Threat Representation***
      - ***Program, by Program (as documented in***
      - ***Using the ATPAS db Tool (GUI enhanced)***

*** Working development of a "Live Interactive, Web Application**

**to reduce annual Pre Conference burden.**

## ATEC's Threat POM Advocacy Process

# *Threat Representations In T&E Working Conference*

- ***Incisive Threat Briefs and Discussions***
  - ***Anticipated Threat Representation Needs Scrub and cross wa***
  - ***Compiles the Consolidated RAW 1-N list of Threat Representa***

**DOTMLPF Scrub & Prioritization**

**Critical Aspect of Process**
**Not All Needs Require New Hardware Start**
**Established and Approved Weighted Prioritization Schema**

## ATEC's Threat POM Advocacy Process

# *Threat POM Build*

***PM ITTS Briefs to ATEC TD & CG –***

***1st*** ***Receive guidance on Threat prioritizat***
***1-N List***

***2nd*** ***Refine & submit Draft POM for approv***
***forwarding to TEO***

## ATEC's Threat POM Advocacy Process

# *Threat POM Submission*

***PM ITTS (w/ ATEC-TTD Threat Program Mana***
***Submits and Briefs the ATEC Approved***
***Threat POM to TEO***

- ***1st*** ***Receive guidance on supplemental documentation required to defend th POM at the PEG***
- ***2nd*** ***Refines documentation for clarity***
- ***3rd*** ***Supports TEO to defend the submission upon request***

# Summary

- **Threat Representation is mandatory in Army T&E.**
- **Threat Systems and Resources must be identified early and must be documented in the TEMP.**
- **TSG and Threat TSP provide the test team with the Threat Requirements and roadmap for test events.**
- **All Threat Representations used in T&E must be Validated (by HQDA (TEO) and/or OSD(DOT&E), and must be Accredited for each specific test event.**
- **Threat Portrayal in T&E is critical to understanding the Effectiveness, Suitability, and Survivability of the System Under Test in realistic combat conditions.**

# Key Organization Responsibilities

| ORGANIZATION | RESPONSIBILITY |
|---|---|
| **HQDA (DCS, G-2) (DAMI-FIT)** | **Oversight of Threat Portrayal in Army T&E** |
| **TRADOC TRISA (TRADOC Intelligence Support Activity)** | **Threat TSP Development/Approval** |
| **HQDA (TEO)** | **HQDA Oversight / Approval of Validation of Threat Representations and Related T&E Policy** |
| **ATEC-Threats** | **Oversight of Accreditation of Threat Representations**<br>**For use in Army T&E** |
| **OSD DOT&E/TETRA** | **DoD Oversight / Approval of Validation of Threat Representations** |
| **PM-ITTS/TSMO** | **Army Threat Provider for T&E / Chair of Army Validation Planning Committee for Threat Representations** |

# Suggested Reading

- **AR 381-11, Chapter 3**
  - **Section 11 – Threat Steering Group (TSG)**
- **AR 381-11, Chapter 4**
  - **Section 2 – System Threat Assessment Report (STAR)**
  - **Section 3 – Threat Test Support Package (Threat TSP)**

- **DA PAM 73-1**
  - **Chapter 3, Test and Evaluation Master Plan**
  - **Chapter 5, Section III – Threat Considerations in System Evaluation**
  - **Chapter 6, Section IV – Threat Test Support Package**
  - **Chapter 6, Section VII – Instrumentation, Targets and Threat Simulators**
  - **Appendix D - TEMP Format and Content**
  - **Appendix Y – Threat Considerations for Testing**
  - **Appendix Z**
    - **Section Z-10/11 – Validation of Threat Targets and Simulators**
    - **Section Z-12 – Accreditation**

# References

| DOCUMENT | TITLE | DATE |
|---|---|---|
| **DoD Directive 5000.1** | ***The Defense Acquisition System*** | **12 May 2003** |
| **DoD Instruction 5000.2** | ***Operation of the Defense Acquisition System*** | **12 May 2003** |
| **AR 381-11** | ***Intelligence Support to Capability Development*** | **26 January 2007** |
| **AR 73-1** | ***Test and Evaluation Policy*** | **10 November 2004** |
| **DA PAM 73-1** | ***Test and Evaluation in Support of Systems Acquisition*** | **30 May 2003** |

# Acknowledgement & Feedback

**This module is a part of the T&E Managers Committee (TEMAC) T&E Refresher Course.**

**Request your feedback. Please contact -**

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